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10/561,096	12/16/2005	Takashi Kikukawa	890050.536USPC	2463

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EXAMINER	
BUTCHER, BRIAN M	

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4113	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/561,096	KIKUKAWA ET AL.	
	Examiner	Art Unit	
	BRIAN BUTCHER	4113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :16 December 2005, 15 December 2006, 06 March 2008, and 06 June 2008.

DETAILED ACTION

Specification

The abstract of the disclosure is objected to because **it is more than 150 words in length and on line 8, "can improve" appears to need a change to** "**improving**". Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities: On **page 1**, **lines 12-13**, "**can improve**" appears to need a change to "**improving**". Appropriate correction is required.

The disclosure is objected to because of the following informalities: On **page 7**, **line 20**, "**limited but oxide**" appears to need a change to "**limited, but oxide**". Appropriate correction is required.

The disclosure is objected to because of the following informalities: On **page 14**, **line 2**, "**to accompanying**" appears to need a change to "**to the accompanying**". Appropriate correction is required.

The disclosure is objected to because of the following informalities: On **page 14**, **line 19**, "**transmission layer 9**" appears to need a change to "**transmission layer 8**". Appropriate correction is required.

The disclosure is objected to because of the following informalities: On **page 17**, **lines 5-6**, "**required value required"** appears to need a change to "**required value**". Appropriate correction is required.

The disclosure is objected to because of the following informalities: On **page 17**, **lines 18-19**, "**380 nm to 450 nm"** appears to need a change to "**390 nm to 420nm**" **(See page 12, lines 2-3).** Appropriate correction is required.

The disclosure is objected to because of the following informalities: On **page 23**, **lines 3 and 6**, "**L"** appears to need a change to "**20**". Appropriate correction is required.

The disclosure is objected to because of the following informalities: On **page 26**, **lines 16, 17, and 25** and on **page 27, line 9**, "**7a"** appears to need a change to "**6a**". Appropriate correction is required.

The disclosure is objected to because of the following informalities: On **page 26**, **lines 16, 24, and 27** and on **page 27, line 1**, "**7b"** appears to need a change to "**6b**". Appropriate correction is required.

The disclosure is objected to because of the following informalities: On **page 31**, **line 22** and on **page 32, line 1**, "**data was recorded"** appears to need a change to "**data were recorded**". Appropriate correction is required.

The disclosure is objected to because of the following informalities: On **page 33**, **line 3**, "**Table 1**" appears to need a change to "**Table 2**". Appropriate correction is required.

The disclosure is objected to because of the following informalities: On **page 33**, **Table 2 appears to be missing data for a recording mark length of 120 nm**. Appropriate correction is required.

The disclosure is objected to because of the following informalities: On **page 33**, **lines 12 and 17**, "**#2**" appears to need a change to "**#3**". Likewise, on **line 15**, "**#3**" appears to need a change to "**#2**". Appropriate correction is required.

The disclosure is objected to because of the following informalities: On **page 34**, **line 23**, "**arrangements but changes**" appears to need a change to "**arrangements, and that changes**". Appropriate correction is required.

Claim Objections

Claims 2 and 3 are objected to because of the following informalities: In **claim 2**, "**40 nm and 100 nm**" appears to need a change to "**40 nm to 100 nm**". Likewise, in **claim 3**, "**50 nm and 100 nm**" appears to need a change to "**50 nm to 100 nm**" Appropriate correction is required.

Claims 3 is objected to because of the following informalities: **Claim 3** appears to properly depend from **Claim 1** and not **Claim 2**. Appropriate correction is required.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 7, and 9 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, 7 of copending Application No.10/561408. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications claim an overlapping thickness for the second dielectric layer and the decomposition reaction layer.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The following table shows the similarities between claims 1 and 7 of the copending Application No.10/561408 and claim 1 of the instant application 10/561096.

Copending Application 10/561408	Instant Application 10/561096
1.) An optical recording disc constituted so that data can be recorded therein and reproduced therefrom by converging a laser beam having a wavelength λ of 390 nm to 420 nm thereonto using an objective lens having a numerical aperture of 0.7 to 0.9, the optical recording disc comprising at least a substrate, a second dielectric layer formed on the substrate and having a thickness of 5 nm to 100 nm, a decomposition reaction layer formed on the second dielectric layer, having a thickness of 2 nm to 80 nm and containing noble metal oxide as a primary component, a first dielectric layer formed on the decomposition reaction layer, and a light transmission layer formed on the first dielectric layer and having a thickness of 10 μm to 200 μm and being constituted so that when it is irradiated with the laser beam from the side of the light transmission layer, the noble metal oxide contained in the decomposition reaction layer as a primary component is decomposed into a noble metal and oxygen so that a bubble pit is formed in the decomposition reaction layer by thus generated oxygen gas and fine particles of the noble metal precipitate into the bubble pit, thereby forming a recording mark in the decomposition reaction layer.	1.) An optimal recording disc constituted so that data can be recorded therein and reproduced therefrom by converging a laser beam having a wavelength λ of 390 nm to 420 nm thereonto using an objective lens having a numerical aperture of 0.7 to 0.9, the optical recording disc comprising a substrate, a third dielectric layer formed on the substrate and having a thickness of 10 nm to 140 nm, a light absorbing layer formed on the third dielectric layer and having a thickness of 5 nm to 100 nm, a second dielectric layer formed on the light absorbing layer and having a thickness of 20 nm to 100 nm, a decomposition reaction layer formed on the second dielectric layer, having a thickness of 2 nm to 50 nm and containing noble metal oxide as a primary component, a first dielectric layer formed on the decomposition reaction layer, and a light transmission layer formed on the first dielectric layer and having a thickness of 10 μm to 200 μm and being constituted so that when it is irradiated with the laser beam from the side of the light transmission layer, the noble metal oxide contained in the decomposition reaction layer as a primary component is decomposed into a noble metal and oxygen so that a bubble pit is formed in the decomposition reaction layer by thus generated oxygen gas and fine particles of the noble metal precipitate into the bubble pit, thereby forming a recording mark in the decomposition reaction layer.
7.) An optical recording disc in accordance with Claim 1, which further comprises a third dielectric layer having a thickness of 10 nm to 140 nm and a light absorbing layer formed on the third dielectric layer and having a thickness of 5 nm to 100 nm located between the substrate and the second dielectric layer and wherein the light absorbing layer absorbs the laser beam and generates heat when the decomposition reaction layer is irradiated with the laser beam from the side of the light transmission layer. ;	

Claims 1, 7, 8, and 9 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, 3, 4, 7, 8, 9, 10, 11, and 14 of copending Application No.10/565351. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications claim an overlapping thickness for the second dielectric layer and the decomposition reaction layer.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The following table shows the similarities between claim 1 of the copending Application No.10/565351 and claim 1 of the instant application 10/561096.

Copending Application 10/565351	Instant Application 10/561096
1.) An optical recording disc constituted so that data can be recorded therein and reproduced therefrom by converging a laser beam having a wavelength ~ of 390 nm to 420 nm thereonto using an objective lens having a numerical aperture of 0.7 to 0.9, the optical recording disc comprising a substrate, a third dielectric layer formed on the substrate and having a thickness of 10 nm to 140 nm, a light absorbing layer formed on the third dielectric layer and having a thickness of 5 nm to 100 nm, a second dielectric layer formed on the light absorbing layer and having a thickness of 5 nm to 100 nm, a decomposition reaction layer formed on the second dielectric layer, having a thickness of 2 nm to 20 nm and containing noble metal oxide as a primary component, a first dielectric layer formed on the decomposition reaction layer, and a light transmission layer formed on the first dielectric layer and having a thickness of 10 μm to 200 μm and being constituted so that when it is irradiated with the	1.) An optimal recording disc constituted so that data can be recorded therein and reproduced therefrom by converging a laser beam having a wavelength λ of 390 nm to 420 nm thereonto using an objective lens having a numerical aperture of 0.7 to 0.9, the optical recording disc comprising a substrate, a third dielectric layer formed on the substrate and having a thickness of 10 nm to 140 nm, a light absorbing layer formed on the third dielectric layer and having a thickness of 5 nm to 100 nm, a second dielectric layer formed on the light absorbing layer and having a thickness of 20 nm to 100 nm, a decomposition reaction layer formed on the second dielectric layer, having a thickness of 2 nm to 50 nm and containing noble metal oxide as a primary component, a first dielectric layer formed on the decomposition reaction layer, and a light transmission layer formed on the first dielectric layer and having a thickness of 10 μm to 200 μm and being constituted so that when it is irradiated with the

laser beam from the side of the light transmission layer, the noble metal oxide contained in the decomposition reaction layer as a primary component is decomposed into a noble metal and oxygen so that a bubble pit is formed in the decomposition reaction layer by thus generated oxygen gas and fine particles of the noble metal precipitate into the bubble pit, thereby forming a recording mark in the decomposition reaction layer.	laser beam from the side of the light transmission layer, the noble metal oxide contained in the decomposition reaction layer as a primary component is decomposed into a noble metal and oxygen so that a bubble pit is formed in the decomposition reaction layer by thus generated oxygen gas and fine particles of the noble metal precipitate into the bubble pit, thereby forming a recording mark in the decomposition reaction layer.

Claims 1, 7, 8, and 9 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, 4, 5, 7, 8, 9, 10, 11, 12, and 14 of copending Application No.10/561090. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications claim an overlapping thickness for the decomposition reaction layer.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The following table shows the similarities between claims 1 and 7 of the copending Application No.10/561090 and claim 1 of the instant application 10/561096.

Copending Application 10/561090	Instant Application 10/561096
1.) An optical recording disc constituted so that data can be recorded therein and reproduced therefrom by converging a laser beam having a wavelength h of 390 nm to 420 nm thereonto using an objective lens having a numerical aperture of 0.7 to 0.9, the optical recording disc comprising at least a substrate, a reflective layer formed on the substrate and having a thickness of 10 nm to 300 nm, a second dielectric layer formed on the reflective layer and having a thickness of 5 nm to 100 nm, a decomposition reaction layer formed on the second dielectric layer, having a thickness of 2 nm to 80 nm and containing noble metal oxide as a primary component, a first dielectric layer formed	1.) An optimal recording disc constituted so that data can be recorded therein and reproduced therefrom by converging a laser beam having a wavelength λ of 390 nm to 420 nm thereonto using an objective lens having a numerical aperture of 0.7 to 0.9, the optical recording disc comprising a substrate, a third dielectric layer formed on the substrate and having a thickness of 10 nm to 140 nm, a light absorbing layer formed on the third dielectric layer and having a thickness of 5 nm to 100 nm, a second dielectric layer formed on the light absorbing layer and having a thickness of 20 nm to 100 nm, a decomposition reaction layer formed on the second dielectric layer, having a

on the decomposition reaction layer, and a light transmission layer formed on the first dielectric layer and having a thickness of 10 μm to 200 μm and being constituted so that when it is irradiated with the laser beam from the side of the light transmission layer, the noble metal oxide contained in the decomposition reaction layer as a primary component is decomposed into a noble metal and oxygen so that a bubble pit is formed in the decomposition reaction layer by thus generated oxygen gas and fine particles of the noble metal precipitate into the bubble pit, thereby forming a recording mark in the decomposition reaction layer.	thickness of 2 nm to 50 nm and containing noble metal oxide as a primary component, a first dielectric layer formed on the decomposition reaction layer, and a light transmission layer formed on the first dielectric layer and having a thickness of 10 μm to 200 μm and being constituted so that when it is irradiated with the laser beam from the side of the light transmission layer, the noble metal oxide contained in the decomposition reaction layer as a primary component is decomposed into a noble metal and oxygen so that a bubble pit is formed in the decomposition reaction layer by thus generated oxygen gas and fine particles of the noble metal precipitate into the bubble pit, thereby forming a recording mark in the decomposition reaction layer.
7.) An optical recording disc in accordance with Claim 1, which further comprises a third dielectric layer having a thickness of 10 nm to 140 nm and a light absorbing layer formed on the third dielectric layer and having a thickness of 5 nm to 100 nm located between the reflective layer and the second dielectric layer and wherein the light absorbing layer absorbs the laser beam and generates heat when the decomposition reaction layer is irradiated with the laser beam from the side of the light transmission layer.	

Claims 1, 2, 3, and 7 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, and 5 of copending Application No.10/563012. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications claim an overlapping thickness for the second dielectric layer.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The following table shows the similarities between claim 1 of the copending Application No.10/563012 and claim 1 of the instant application 10/561096.

The following table shows the similarities between claim 1 of the copending Application No.10/563012 and claim 1 of the instant application 10/561096.

Copending Application 10/563012	Instant Application 10/561096
1.) An optical recording medium comprising: a support substrate; an optical transmitting layer; and a first dielectric layer, a noble metal oxide layer, a second dielectric layer, a light absorption layer, and a third dielectric layer, all of which are interposed, in this sequence from said optical transmitting layer, between said optical transmitting layer and said support substrate, wherein a thickness of said support substrate ranges from 0.6 mm to 2.0 mm; a thickness of said optical transmitting layer ranges from 10 μm to 200 μm; a thickness of said noble metal oxide layer ranges from 2 nm to 50 nm; a thickness of said second dielectric layer ranges from 5 nm to 100 nm; a thickness of said light absorption layer ranges from 5 nm to 100 nm; and a thickness of said third dielectric layer ranges from 10 nm to 140 nm.	1.) An optimal recording disc constituted so that data can be recorded therein and reproduced therefrom by converging a laser beam having a wavelength λ of 390 nm to 420 nm thereonto using an objective lens having a numerical aperture of 0.7 to 0.9, the optical recording disc comprising a substrate, a third dielectric layer formed on the substrate and having a thickness of 10 nm to 140 nm, a light absorbing layer formed on the third dielectric layer and having a thickness of 5 nm to 100 nm, a second dielectric layer formed on the light absorbing layer and having a thickness of 20 nm to 100 nm, a decomposition reaction layer formed on the second dielectric layer, having a thickness of 2 nm to 50 nm and containing noble metal oxide as a primary component, a first dielectric layer formed on the decomposition reaction layer, and a light transmission layer formed on the first dielectric layer and having a thickness of 10 μm to 200 μm and being constituted so that when it is irradiated with the laser beam from the side of the light transmission layer, the noble metal oxide contained in the decomposition reaction layer as a primary component is decomposed into a noble metal and oxygen so that a bubble pit is formed in the decomposition reaction layer by thus generated oxygen gas and fine particles of the noble metal precipitate into the bubble pit, thereby forming a recording mark in the decomposition reaction layer.

Claims 1, 2, 3, and 7 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, 3, 5, 6, and

7 of copending Application No.10/565679. Although the conflicting claims are not identical, they are not patentably distinct from each other because the copending application claims obvious variants of the instant application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The following table shows the similarities between claims 1, 2, 3 and 6 of the copending Application No.10/565679 and claim 1 of the instant application 10/561096.

Copending Application 10/565679	Instant Application 10/561096
1.) An optical recording medium comprising: a substrate; and a noble metal nitride layer provided on the substrate.	1.) An optimal recording disc constituted so that data can be recorded therein and reproduced therefrom by converging a laser beam having a wavelength λ of 390 nm to 420 nm thereonto using an objective lens having a numerical aperture of 0.7 to 0.9, the optical recording disc comprising a substrate, a third dielectric layer formed on the substrate and having a thickness of 10 nm to 140 nm, a light absorbing layer formed on the third dielectric layer and having a thickness of 5 nm to 100 nm, a second dielectric layer formed on the light absorbing layer and having a thickness of 20 nm to 100 nm, a decomposition reaction layer formed on the second dielectric layer, having a thickness of 2 nm to 50 nm and containing noble metal oxide as a primary component, a first dielectric layer formed on the decomposition reaction layer, and a light transmission layer formed on the first dielectric layer and having a thickness of 10 μm to 200 μm and being constituted so that when it is irradiated with the laser beam from the side of the light transmission layer, the noble metal oxide contained in the decomposition reaction layer as a primary component is decomposed into a noble metal and oxygen so that a bubble pit is formed in the decomposition reaction layer by thus generated oxygen gas and fine particles of the noble metal precipitate into the bubble pit, thereby forming a recording mark in the decomposition reaction layer.
2.) The optical recording medium according to claim 1, further comprising: a first dielectric layer provided on a light entrance face side of the substrate when viewed from the noble metal nitride layer; and a second dielectric layer provided on a side of the substrate opposite the light entrance face thereof when viewed from the noble metal nitride layer.	
3.) The optical recording medium according to claim 2, further comprising: a light absorption layer and a third dielectric layer, which are provided on a side of the substrate opposite the light entrance face thereof when viewed from the second dielectric layer and arranged in this sequence when viewed from the second dielectric layer.	
6.) The optical recording medium according to any one of claims 2 through 5, further comprising: a light-transmitting layer which is provided opposite to the substrate when viewed from the first dielectric layer and has the light	

entrance face.	

Claims 1, 2, 3, 4, 5, 6, 7, and 8 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, 4, 5, 6, 12, 13, and 14 of copending Application No.10/568582. Although the conflicting claims are not identical, they are not patentably distinct from each other because the copending application claims obvious variants of the instant application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The following table shows the similarities between claims 1 and 2 of the copending Application No.10/568582 and claims 1 and 4 of the instant application 10/561096.

Copending Application 10/568582	Instant Application 10/561096
1.) An optical recording medium comprising: a substrate, a noble-metal oxide layer provided on the substrate, a first dielectric layer provided on a light-incidence plane side when viewed from the noble-metal oxide layer and a second dielectric layer provided on the side opposite to the light-incidence plane when viewed from the noble-metal oxide player, the second dielectric layer containing ZnS or a mixture of ZnS and SiO2 as a main component, wherein the proportion of ZnS to the sum of ZnS and SiO2 is set at a value from 60 mole % to 100 mole %.	1.) An optimal recording disc constituted so that data can be recorded therein and reproduced therefrom by converging a laser beam having a wavelength λ of 390 nm to 420 nm thereonto using an objective lens having a numerical aperture of 0.7 to 0.9, the optical recording disc comprising a substrate, a third dielectric layer formed on the substrate and having a thickness of 10 nm to 140 nm, a light absorbing layer formed on the third dielectric layer and having a thickness of 5 nm to 100 nm, a second dielectric layer formed on the light absorbing layer and having a thickness of 20 nm to 100 nm, a decomposition reaction layer formed on the second dielectric layer, having a thickness of 2 nm to 50 nm and containing noble metal oxide as a primary component, a first dielectric layer formed on the decomposition reaction layer, and a light transmission layer formed on the first dielectric layer and having a thickness of 10 μm to 200 μm and being

	constituted so that when it is irradiated with the laser beam from the side of the light transmission layer, the noble metal oxide contained in the decomposition reaction layer as a primary component is decomposed into a noble metal and oxygen so that a bubble pit is formed in the decomposition reaction layer by thus generated oxygen gas and fine particles of the noble metal precipitate into the bubble pit, thereby forming a recording mark in the decomposition reaction layer.
2.) An optical recording medium as described in claim 1, further comprising, on the side opposite to the light-incidence plane when viewed from the second dielectric layer, a light absorption layer and a third dielectric layer arranged in this order when viewed from the second dielectric layer.	4.) An optical recording disc in accordance with Claim 1, wherein the second dielectric layer contains a mixture of ZnS and Si02 as a primary component.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tominaga et al. (United States Patent 5,252,370), hereinafter referenced as Tominaga,

in view of Terao et al., (United States Patent 4,357,616), hereinafter referenced as Terao, and further in view of Hwang et al. (United States Patent 7,348,124), hereinafter referenced as Hwang.

Regarding **claim 1**, Tominaga discloses an optical recording medium which reads on the optical recording disc claimed. First, Tominaga discloses the use of the optical medium in the wavelength range from 300 to 900 nm (column 3, lines 22-26) which reads on "constituted so that data can be recorded therein and reproduced therefrom by converging a laser beam having a wavelength λ of 390 nm to 420 nm" (claimed. Second, Tominaga discloses a substrate, (column 4, lines 3-21, and figure 2 item 2) which reads on "a light transmission layer" (Specifically, see column 4, lines 3-6) because it is optically transparent. Third, Tominaga discloses a recording thin film (column 4, lines 24-47, and figure 2 item 3) which reads on "a decomposition reaction layer" claimed because the film contains a noble metal oxide, silver oxide, as a primary component and has a thickness in the range of 60 to 150 nm. Fourth, Tominaga discloses a dielectric thin film (column 5, lines 13-44, and figure 2 item 4) which reads on "a second dielectric layer" claimed because the film is on the side of the recording thin film opposite the recording/reproducing light and the films thickness is from 50nm to 400nm. However, Tominaga fails to disclose the use of "an objective lens having a numerical aperture of 0.7 to 0.9", "a substrate", "a third dielectric layer", "a light absorbing layer", and "a first dielectric layer". The examiner maintains that it was well known in the art for the optical storage medium disclosed in Tominaga to include a light absorbing layer, a third dielectric layer, and a substrate as taught by Terao. Also, the

examiner maintains that it was well known in the art for the optical storage medium disclosed in Tominaga to include an objective lens having a numerical aperture of 0.7 to 0.9 and a first dielectric layer as taught by Hwang.

In a similar field of endeavor Terao discloses a light absorbing layer (column 2, lines 62-67, and figure 5 item 2), the use of stabilizing layers (column 8, lines 56-59, and figure 5 items 30,31) which reads on a second and third dielectric, and a substrate (column 2, lines 62-64, and figure 5 item 1). Also, in a similar field of endeavor Hwang discloses that it is known in the prior art that the storage capacity of an optical disk can be increased by decreasing the wavelength of a light source or increasing the numerical aperture of the objective lens used in recording/reproduction (paragraph [0010]) which reads on "an objective lens having a numerical aperture of 0.7 to 0.9" because the numerical aperture of the lens is taken towards the limit of 1.0. In addition, Hwang discloses a conventional optical disc of the prior art having a recording layer between two dielectric layers (paragraph [0011] and figure 1 items 14,15) which reads on "a first dielectric layer formed on the decomposition reaction layer" claimed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical storage medium of Tominaga by specifically using the teachings in Terao to include a substrate, a second and third dielectric, and a light absorbing layer because one having the skill in the art would want to give the disc a physical structure or framework, prevent the migration of chemical species from the light absorption layer, and conduct heat to the recording layer, respectively. Also, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify the optical storage medium of Tominaga by specifically using the teachings in Hwang to provide a dielectric layer between a laser beam and a noble metal oxide layer, and to provide an objective lens having a high numerical aperture because one having ordinary skill in the art would want to give to prevent the migration of chemical species from the recording layer, and increase the data storage capacity of the disc, respectively.

Regarding **claim 2**, Tominaga, Terao, and Hwang, the combination of hereinafter referenced as TTH, disclose everything claimed as applied above (see claim 1). Specifically, Tominaga discloses a dielectric thin film that has a thickness of 50 to 400 nm (column 5, lines 13-44, and figure 2 item 4) which reads on "the second dielectric layer [having] a thickness of 40 nm [to] 100 nm" claimed because the range overlaps.

Regarding **claim 3**, TTH disclose everything claimed as applied above (see claim 1). Specifically, Tominaga discloses a dielectric thin film that has a thickness of 50 to 400 nm (column 5, lines 13-44, and figure 2 item 4) which reads on "the second dielectric layer [having] a thickness of 40 nm [to] 100 nm" claimed because the range overlaps.

Regarding **claim 4**, TTH disclose everything claimed as applied above (see claim 1). Specifically, Hwang discloses a recording layer between two dielectric layers, where the dielectric is composed of a mixture of ZnS and SiO_2 (paragraphs [0011] [0018] and figure 1 items 14,15) which reads on "the second dielectric layer [containing] a mixture of ZnS and SiO_2 as a primary component" claimed.

Regarding **claim 5**, TTH disclose everything claimed as applied above (see claim 2). Specifically, Hwang discloses a recording layer between two dielectric layers, where the dielectric is composed of a mixture of ZnS and SiO_2 (paragraphs [0011] [0018] and figure 1 items 14,15) which reads on "the second dielectric layer [containing] a mixture of ZnS and SiO_2 as a primary component" claimed.

Regarding **claim 6**, TTH disclose everything claimed as applied above (see claim 3). Specifically, Hwang discloses a recording layer between two dielectric layers, where the dielectric is composed of a mixture of ZnS and SiO_2 (paragraphs [0011] [0018] and figure 1 items 14,15) which reads on "the second dielectric layer [containing] a mixture of ZnS and SiO_2 as a primary component" claimed.

Regarding **claim 7**, TTH disclose everything claimed as applied above (see claim 1). Specifically, Hwang discloses the use of the noble metal platinum in a mask layer (paragraph [0029] [0030]) which reads on "wherein the noble metal oxide is platinum oxide". In addition, Tominaga discloses that the recording thin film, a noble metal oxide, is silver oxide and that it decomposes into silver and oxygen when heated through exposure to radiation from laser light (column 2, lines 51-65, and figure 1) which reads on "and the platinum oxide is decomposed into platinum and oxygen when the decomposition reaction layer is irradiated with the laser beam via the light transmission layer".

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical disc recording apparatus of Tominaga by specifically using the teachings in Hwang to compose the decomposition reaction

layer of platinum oxide because one having ordinary skill in the art would want to provide a high resolution near field structure at the recording layer of an optical disc

Regarding **claim 8**, TTH disclose everything claimed as applied above (see claim 1). Specifically, Tominaga discloses a light absorbing layer which contains principally at least one element of either Te or Sb (column 2, lines 62-68, and figure 5 item 2) which reads on "the light absorbing layer [containing] at least on of Sb and Te" claimed.

Regarding **claim 9**, TTH disclose everything claimed as applied above (see claim 1). Specifically, Terao discloses the deformation of layers other than the recoding layer including the dielectrics (column 5, lines 37-44) which reads on "the second dielectric layer and the light absorbing layer are deformed when the bubble pit is formed in the decomposition reaction layer" claimed.

The following references are cited as of interest for disclosure of claimed elements that are similar to applicant's claimed invention: United States Patent Application Publications 2005/0219994, 2006/0062110, 2006/0153051, 2006/0165945, 2007/0030795, and 2007/0122583.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian M. Butcher whose telephone number is (571) 270 – 5575. The examiner can normally be reached on Monday - Friday 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's trainer, Jefferey F. Harold can be reached at (571) 272 – 7519. The fax phone number for the organization where this application or proceeding is assigned is (703) 872—9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305 – 4800.

BMB
July 17, 2008
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Supervisory Patent Examiner, Art Unit 4113